

# Supporting Experimentation via an Evaluation Infrastructure for Semantic Technologies

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One of the challenges of the Future Internet is to manage and combine information about different digital and real-world entities and the characteristics of these entities, covering related issues such as the trust or provenance of this information. One way to allow an effective representation and integration of this information is to use semantic technologies to correctly manage not just these heterogeneous content and data but also their associated metadata.

By developing an evaluation infrastructure for semantic technologies, we can ensure that in the current explosion of semantic technologies we can still support an experimentation-driven research and development of these technologies and assess whether semantic technologies cover Future Internet requirements (efficiency, scalability, interoperability, etc.).

The SEALS (Semantic Evaluation at Large Scale) European project<sup>1</sup> aims to address two key challenges: the creation of a lasting reference infrastructure for semantic technology evaluation (the SEALS Platform) and the continuous evaluation of semantic technologies at a large scale via public world-wide evaluation campaigns. This project started in June 2009 and is funded by the Research Infrastructures part of the FP7 Capacities programme<sup>2</sup>.

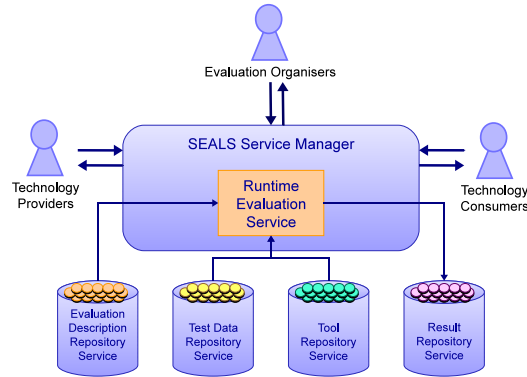
SEALS will work towards the creation of an open and sustainable worldwide community focused on the evaluation and progressive development of semantic technology, which will survive the SEALS project. Our long-term goal is that the SEALS Platform be actively used and managed by the semantic community and, to this end, the SEALS project is calling for requirements from semantic technology researchers, providers and consumers that will feed the project plans. The dissemination and community building activities will establish a foundational network of technology users, providers, and researchers supported by the SEALS Platform. A foundational network is essential to obtaining sustainable research solutions, with promising potential to mature into marketable products.

*The SEALS Platform* will be an independent, open, scalable, extensible and sustainable infrastructure that will allow the remote evaluation of semantic tech-

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<sup>1</sup> <http://www.seals-project.eu/>

<sup>2</sup> <http://cordis.europa.eu/fp7/ict/e-infrastructure/>



**Fig. 1.** The users and components of the SEALS Platform

nologies by providing an integrated set of evaluation services and test suites. The SEALS Platform will be used in two public world-wide evaluation campaigns and the results of these evaluation campaigns will be employed in creating semantic technology roadmaps, identifying sets of efficient and compatible tools for developing large-scale semantic applications.

Figure 1 provides an overview of the users and components of the SEALS Platform. The semantic technology evaluation services will initially be available for five different types of technologies (ontology engineering tools, storage and reasoning systems, matching tools, semantic search tools, and semantic web service tools) and for different evaluation criteria (interoperability, scalability, etc.).

*The SEALS Evaluation Campaigns* will cover the five different types of tools taken into account in the project and will continue existing well-known evaluation campaigns in the Semantic Web area such as the Ontology Alignment Evaluation Initiative<sup>3</sup>, the RDF(S) and OWL Interoperability Benchmarking activities<sup>4</sup>, the Semantic Web Service Challenge<sup>5</sup>, and the PASCAL Challenges<sup>6</sup>.

We plan to maintain the infrastructure up and running beyond the end of the project. Indirectly, this is expected to help accelerate innovation in all those fields in which evaluation mechanisms are provided, in the same way as the TREC<sup>7</sup> benchmarks in information retrieval or the TPC<sup>8</sup> benchmarks in database research do.

SEALS will innovate the way in which semantic technology is evaluated. The infrastructure developed within SEALS is, therefore, expected to support experimentation-driven long term research for both industry and academia in the Future Internet.

<sup>3</sup> <http://oei.ontologymatching.org/>

<sup>4</sup> [http://knowledgeweb.semanticweb.org/benchmarking\\_interoperability/](http://knowledgeweb.semanticweb.org/benchmarking_interoperability/)

<sup>5</sup> <http://sws-challenge.org/>

<sup>6</sup> <http://pascallin.ecs.soton.ac.uk/Challenges/>

<sup>7</sup> <http://trec.nist.gov/>

<sup>8</sup> <http://www.tpc.org/>